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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,901	04/27/2005	Bernardus Hendrikus Wilhelmus Hendriks	NL 021109	3102

24737 7590 07/10/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT PAPER NUMBER

2627

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,901	<b>Applicant(s)</b> HENDRIKS ET AL.	
	<b>Examiner</b> Christopher R. Lamb	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/23/06</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The patent US 5,876,315 listed in the IDS filed January 23, 2006 has been considered by the examiner, but does not appear to be at all relevant to the application. It is directed to a machining tool completely unrelated to optical recording media. The Applicant may wish to review their records to determine if this patent was intended to be reviewed with regards to this application, or provide some explanation of relevance for the Examiner to consider.

2. The information disclosure statement filed January 23rd, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specifically, there is no copy of the documents WO0124174, JP0146478, WO03060892, and WO03049095.

3. The information disclosure statement filed January 23<sup>rd</sup>, 2006 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specifically, there is no explanation of relevance for JP0146478.

***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore:

- a. the stepped phase structure which is non-periodic with respect to a direction perpendicular to the optical axis (claim 10); and
- b. the thickness in one part of the wavefront aberration-generating portion of at least half the thickness in another part of the wavefront aberration generation portion (claim 11)

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 8-9, 11-15, 17-19, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Jeong (US 6,992,967).

Regarding claim 1:

Jeong discloses an optical scanning device for scanning optical record carriers (column 1, lines 10-20),

the device comprising an optical system for converging first and second radiation beams onto the optical record carriers being scanned (column 6, lines 10-15),

the optical system including an optical element arranged along an optical axis and having at least two portions (Figs. 6-9),

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including a body portion having relatively low birefringence (column 5, lines 48-67; the glass)

a wavefront aberration generating portion having a relatively high birefringence (column 5, lines 48-67),

the body portion having an attachment surface on which the wavefront aberration generating portion is formed (column 5, lines 48-67: it is formed on the glass),

the wavefront aberration generating portion having a first surface facing said attachment surface and a second surface facing away from said attachment surface (clear from Fig. 7-8),

the first and second surfaces being of a different shape so that the thickness of the wavefront aberration generating portion, measured parallel to said optical axis, varies along a direction perpendicular to the optical axis (clear from Fig. 7-8), and

wherein the thickness of the wavefront aberration generating portion at said optical axis is less than half the thickness of the body portion at said optical axis (apparent from Fig. 9).

Regarding claim 2:

In Jeong the thickness of the wavefront aberration generating portion along said optical axis is less than one fifth of the thickness of the body portion along said optical axis (apparent from Fig. 9).

Regarding claim 3:

In Jeong the wavefront aberration generating portion is arranged to generate a difference in wavefront aberrations in said first and second beams respectively, which

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difference is greater than that generated by the body portion when illuminated by the first and second beams respectively (shown in Fig. 9: column 6, lines 35-60).

Regarding claim 8:

In Jeong the second surface is non-planar (it is a sawtooth shape, visible in Fig. 7-8).

Regarding claim 9:

In Jeong the second surface is substantially aspherical (it is a sawtooth shape, entirely aspherical, visible in Fig. 7-8).

Regarding claim 11:

In Jeong the thickness variation of the wavefront aberration generating portion is such that the thickness in one part of the wavefront aberration-generating portion is at least half the thickness in another part of the wavefront aberration-generating portion (true due to the sawtooth shape, visible in Fig. 7-8).

Regarding claim 12:

In Jeong the average thickness of the wavefront aberration generating portion, taken across at least one of said first and second beams, is less than 500  $\mu\text{m}$  (not specifically disclosed, but inherent: stepped holographic elements for these wavelengths are on the order of a few  $\mu\text{m}$ ).

Regarding claim 13:

In Jeong the average thickness of the wavefront aberration generating portion, taken across at least one of said first and second beams, is less than 100  $\mu\text{m}$  (not

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specifically disclosed, but inherent: stepped holographic elements for these wavelengths are on the order of a few  $\mu\text{m}$ ).

Regarding claim 14:

In Jeong the body portion is substantially non-birefringent (it is glass: column 5, lines 48-67).

Regarding claim 15:

In Jeong the body portion is made of a glass material (column 5, lines 48-67).

Regarding claim 17:

In Jeong the optical system is arranged to operate in an infinite conjugate arrangement both when scanning using said first radiation beam and when scanning using said second radiation beam (this just means both beams are collimated when they reach the optical element: this is apparent from Fig. 2, or the incident wavefronts depicted in Fig. 9).

Regarding claims 18, 19, and 23-25:

All elements positively recited have already been discussed with regards to the previous claims.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



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9. Claims 4-7 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong (US 6,992,967) in view of Furuta et al. (US 2002/0170887).

Regarding claim 4:

Jeong discloses an optical scanning device as discussed in the rejection of claim 1 above.

Jeong does not disclose wherein the body portion is a lens body.

Furuta discloses a birefringent structure applied to the surface of an objective lens (Fig. 41; paragraph 414). Furuta discloses having this instead of a separate birefringent element reduces the number of components, making the device smaller and cheaper (paragraphs 417-418).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Jeong wherein the birefringent element is attached to the surface of an objective lens instead of a separate element, as taught by Furuta; in which case the body portion of Jeong would be a lens body.

The motivation would have been to make the device smaller and cheaper, as taught by Furuta.

Regarding claim 5-7:

In Jeong in view of Furuta the attachment surface is a plano-spherical surface (because it is attached to the objective lens); thus it is also substantially spherical and curved.

Regarding claims 20-22:

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All elements of these claims are met by Jeong in view of Furuta, as discussed with regards to the earlier claims.

10. Claims 10, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong in view of Kitaoka et al. (US 6,819,646).

Regarding claim 10:

Jeong discloses an optical scanning device as discussed above.

Jeong does not disclose “wherein the second surface includes a step phase structure which is non-periodic with respect to a direction perpendicular to the optical axis.”

Note that Jeong’s surface is intended to compensate for spherical aberration.

Kitaoka discloses a stepped phase structure which is non-periodic with respect to a direction perpendicular to the optical axis (Fig. 7; in 7b these are listed as voltages because they are intended for use with a liquid crystal element, but with such an element the phase steps and voltages are equivalent) intended to compensate for spherical aberration; Kitaoka’s structure is necessary when a red laser is used with a lens designed for blue light (column 14, lines 63 to column 20).

It would have been obvious to one of ordinary skill in the art to include in Jeong wherein the second surface includes a step phase structure which is non-periodic with respect to a direction perpendicular to the optical axis, as taught by Kitaoka.

The motivation would have been to create a system used with the wavelengths disclosed by Kitaoka.

Regarding claims 16 and 26:

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Jeong discloses an optical scanning device and/or element as discussed in the rejection of claims 1 and 18.

Jeong does not disclose wherein "the wavefront aberration generating portion is made of a curable liquid crystal material."

Kitaoka discloses wherein the wavefront aberration generating portion is made of a curable liquid crystal material (column 14, lines 35-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Jeong wherein the wavefront aberration generating portion is made of a curable liquid crystal material, as taught by Kitaoka.

The motivation would have been able to adjust the characteristics for multiple wavelengths, as taught by Kitaoka (Jeong's device has fixed characteristics).

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 6/29/06

  
THANG V. TRAN  
PRIMARY EXAMINER